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ANNUAL REPORT

OF THE

BOARD OF REGENTS

OF THE

Agricultural College, Experiment Station

AND

School of Science

OF THE

STATE OF WASHINGTON.

NOVEMBER 1, 1896.

OLYMPIA, WASH.:
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REPORT.

To His Excellency, Governor J. H. McGraw:

In accordance with section 16, of the act of March 9th, 1891, the Board of Regents of the Agricultural College and School of Science of the State of Washington submit the following report:

The two years which have passed since the making of the last biennial report have been years of great prosperity for the college, Notwithstanding the fact that the institution is in its infancy, its purposes and methods not fully understood, and that it has been compelled to undergo the difficulties of a period of financial depression, it has made rapid progress in all things which it takes to constitute a great college. Its courses of study have been extended and made more nearly adequate to the needs of the community. The attendance of students has greatly increased, and the interest and support of the citizens of the state generally, and of the farming community in particular, have been enlisted in the welfare of the institution. The attendance in the year just passed was nearly 70 per cent. larger than it had been the year before, and the year before it was about 70 per cent. larger than it had been the year before that. This increase is the more gratifying in view of the fact that a very large percentage of the students were compelled to earn their own support. The interest of the people in an institution which has for its purpose the connecting of higher education with the industrial welfare of the people, is constantly growing in a way highly satisfactory to all connected officially with the institution. It is believed that as this idea becomes more prevalent the institution will be able, not only to advance greatly the educational interests of the state, but to contribute in a very great degree to its material prosperity.

This board of regents two years ago asked the legislature for certain appropriations, and in accordance with the request, the following appropriations were made:

For furnishing administration building and connecting with steam plant	$6,000 00
For heat, light and power plant	7,500 00

For building, heating, lighting and furnishing girls' dormitory	$20,000 00
For dairy plant, piggery and granary	4,000 00
For the purchase of land in front and south of campus	4,000 00
For experiment station at Puyallup	2,500 00

A detailed account of this expenditure is given elsewhere. In this connection we would report as follows:

FURNISHING ADMINISTRATION BUILDING.

The administration building has been furnished with substantial chairs with arm rests, for the lecture rooms; electrical lighting apparatus has been provided throughout the building; the chapel has been seated with opera chairs; the chemical and physical and biological laboratories have received an equipment of desks, piers, etc.; the business offices have been supplied with the suitable equipment of furniture.

HEAT, LIGHT AND POWER PLANT.

The last legislature appropriated $7,500 for the construction of a heat, light and power plant. The reasons for the construction of a new plant were as follows:

The old plant was entirely inadequate to the needs of the institution. It was so located that the water of condensation had to be pumped back to the boilers, and it was in other respects an uneconomical plant. With the construction of the new buildings provided for it was necessary either that it should be greatly enlarged, or that an entirely new plant should be constructed. It was located as high on the hill as the college buildings themselves. This made the cost of hauling fuel from the railway tracks, particularly in bad weather, very great. It was therefore deemed advisable to locate the plant at the foot of the hill at some point where a spur from the railway could be put in. For this purpose two lots adjoining the campus were purchased, at an expense of $350. It was impossible to estimate beforehand just what the expense of removing such portions of the old plant as might be available would be. Also, how much of the old plant could be used in the new. In constructing the new plant it was considered necessary not only to make it capable of supplying the buildings with heat and light, and the mechanical engineering building with power, but also to make it suitable for illustrative purposes in the instruction in the various engineering courses. It was further found necessary to sink an artesian well, with which to furnish the water supply for the condenser and other purposes. The plant is placed on the side of the hill and consists of boiler room, 50 feet long and 36 feet wide, with coal sheds attached; a condenser room, 12 x 18, and an engine and dynamo room, 32 x 40. To save excavation the latter was placed at a greater elevation than the former. A brick stack 90 feet high was constructed on the ledge of the rock and connected with the boilers by a conduit in such a way as to give a rise above the boilers of over 100 feet, insuring a good draft. Two of the 50 horse power boilers which had been used in the old plant were placed in the new. These are the common type of fire tube boilers. Two new boilers were purchased, one a 150 horse power water tube boiler, the other a 130 horse power compound safety water tube boiler. A tandem compound engine, capable of developing about 80 horse power, was purchased of McEwen's, of Ridgeway, Pa. An additional 15-kw. dynamo was purchased, and an excellent switchboard supplied with suitable instruments. The plant was connected with the several buildings on the campus, seven in number, by means of steam pipe. These buildings are from 600 to 1,200 feet distant from the plant itself. This pipe was insulated as follows: It was first wrapped with two thicknesses of asbestos paper, then a thickness of rosin paper, and was laid in split sewer pipe, the lower half of the sewer pipe being placed in position first, then the pipe laid, and the upper half of the sewer pipe being put on top. The sewer pipe was then packed full of planer shavings, it having been determined by an elaborate series of experiments that this was one of the very best and in all respects the most economical of insulating materials. Proper provision was made for the expansion of the pipe, and also for the pipes carrying the return water. The pipes were laid in trenches, manholes being placed at the distributing points. The steam is carried to the several buildings at boiler pressure, the reduction valves being placed inside of the buildings. The drop in pressure between the initial point and the buildings has been shown to be very small, thus indicating that the insulation is very good. All the water of condensation, of course, is carried back by gravity to the boilers. Some difficulty has been experienced in having perfect fitting at the manholes, and some loss of heat has been occasioned thereby.

The electric wires for lighting the buildings, also for operating the mechanical engineering building, were also placed under ground and were thoroughly insulated. It was found that the amount of the appropriation would be entirely inadequate for the construction of a plant such as would be necessary for the proper heating and lighting of the buildings. The cost of construction was very materially increased by great delays on the part of the persons who were to furnish the material, a delay of sixty days being occasioned through a mistake on the part of the persons furnishing the sewer pipe, and a delay of several months being occasioned on account of the delay of the boiler makers. This made the plant much more expensive in construction than could have been anticipated in any way. The prolonging of the work far into the winter months was not only a waste and aggravation but a positive loss. The board was in somewhat of a dilemma in regard to the best course to pursue, feeling on the one hand that it was absolutely necessary to have a plant adequate for the purposes of the institution, and on the other hand that the amount appropriated was altogether inadequate to provide such a plant. At the same time it was known that it was not possible to create a deficiency. Under the circumstances the board addressed a communication to the secretary of the interior stating that the state had provided a certain number of boilers for heating the various buildings; that it was necessary for purposes of instruction and illustrating instruction in the mechanical engineering department to operate the mechanical engineering buildings; that the equipment of one boiler would be necessary for this purpose, and permission was asked of the secretary of the interior to put in one boiler and pay for it out of the Morrill fund. This permission was granted and the board acted accordingly. It is necessary, however, that this boiler should be used for purposes of heating the buildings as well as for operating the mechanical engineering building, and it is the duty of the state to provide the means of heating all the buildings. It, therefore, in the opinion of the board, is the duty of the state to reimburse the Morrill fund for this expenditure. The cost of purchasing and setting this boiler was $1,500. A considerable portion of the machinery in the power plant, having answered for purposes of instruction and the illustrating of instruction, was likewise paid for out of the Morrill fund. The total cost of the plant, all these things considered, has been about $15,000 over and above the value of the old material put into it. You are referred to the financial report for an itemized account of these expenditures. The board of regents feel assured that it has an excellent plant which will be adequate to the needs of the institution for some time, not only for supplying it with heat, light and power, but also for purposes of instruction.

THE GIRLS' DORMITORY.

In the biennial report of two years ago the board of regents set forth at length the need of a girls' dormitory, and asked that an appropriation of $20,000 be made for that purpose. The legislature, after examining into the needs of the institution through its committee, made an appropriation of $20,000 for a girls' dormitory, which sum was to cover the cost of building, heating, lighting and furnishing the building. In the spring of 1895, immediately after the adjournment of the legislature, the board of regents, recognizing the urgency of the need for such a dormitory, promptly employed an architect and had plans and specifications prepared for such a building as was deemed necessary. With such rapidity was the work pushed that the board was enabled to let the contract on the 23d day of May. The contract for the building, exclusive of architect's fees, excavation, heating, lighting and plumbing was $15,198. The contractors pushed the work with commendable vigor during the summer and in consequence of this we were able to take possession of the dormitory and occupy it by the 13th of December, 1895. Considering the size of the building, the board congratulates itself on the rapidity with which the work was accomplished. After very considerable correspondence with the leading institutions of the country, where similar buildings have been built, plans were adopted which gives us one of the most compact and conveniently arranged buildings for the purpose to be found in the country. In external architecture the building follows the old colonial type. It is built of stone, brick and shingles. The building is 154 ft. by 90 ft. over all, and consists of two stories, basement and attic. The latter it was impossible to finish within the limits of the appropriation. The architectural design of the building and the possible future needs of the institution suggested the wisdom of an attic which might be fitted up to provide for the accommodation of more students hereafter. This attic may be so finished up as to accommodate twenty-five young ladies, and it is the belief of the board that an appropriation should be made at an early date for the finishing up of this attic, as the rapid growth in numbers of the institution promises to test the utmost capacity of the building within a comparatively short time.

On the basement floor of the building is a dining room, kitchen, pantries and serving room. The intention of the board is that the kitchen and pantries may be used as the basis of the work in domestic economy which it is proposed to establish as soon as the circumstances will permit. Meanwhile, these parts of the building may be used for the boarding club. On the basement floor, also, are rooms for the housekeeper, a large recreation room, and a small but conveniently arranged laundry; also a fuel room. The north wing of the first floor is occupied by a handsome reception hall and parlor into which there opens a music room and the preceptress' room. The rest of the floor and the floor above are devoted to the rooms for the young lady students. At present there are accommodations for about fifty students. It is believed that the arrangement of these rooms is the best possible, insuring abundance of light, heat and ventilation. On each floor of the building are bath rooms. A feature of the building is to be found in the enclosure of the long upper porch with sash, giving the opportunity for recreation in the sunlight during even the most inclement weather. The rooms of the students are supplied each with bedstead, with woven wire mattress, a commode and a study table. The study rooms are all provided with steam heat and electric light. Provision was made for a trunk lift in the building, but the limitations of the appropriation did not permit the putting in of an elevator. A small appropriation for this purpose would be a wise expenditure. All in all, the board believes that a convenient, healthful and delightful home has been provided for the young women who are seeking an education at this institution. The building is in charge of a preceptress who gives attention to the social, intellectual and physical welfare of the young women entrusted to her charge. The expenditures in the construction of this building are given on page 3.

DAIRY PLANT, PIGGERY AND GRANARY.

At the last session of the legislature $4,000 was appropriated, to be expended for dairy, piggery and granary. The following buildings have been erected from this fund:

First, the creamery, containing the following rooms: Intake, 6x10 ft.; receiving platform, 14x20 ft.; cream room, 20x20 ft.; butter room, 15x22 ft.; cold storage room, 10x10 ft.; ice room, 20x10 ft.; cheese room, 20x34 ft.; cheese curing room, 14x20 ft.;

engine room, 12x18 ft.; fuel room, 6x12 ft. The milk is carried from the receiving tank to the churn by gravity. The creamery can handle from four to five thousand pounds of milk daily.

Second, the cow barn, 33 x 41½ ft., containing two rows of ten stalls each, and separated by a middle aisle 8 ft. wide. Behind each row of stalls is a drop 18 inches wide and 6 inches deep, with drainage to the manure pit; behind this is a passage way 4 ft. wide. The cow barn is attached to the main college barn and is in close proximity to the silos, root cellar, feed and fodder bins. The department is provided with root slicer, silo and fodder cutter, grinder, scales, etc.

Third, a piggery, 76 x 28 ft., with an L 15 x 20 ft., including eight pens about 10 x 18 ft., with feeding troughs, etc., a swill vat, and swill truck, steam cooker, etc., arranged for experimentation in the care and feeding of swine.

The creamery has been equipped with complete modern butter making and cheese making outfit. It is designed as a model for a creamery and cheese factory on a commercial basis and at the same time is adapted for instruction in these arts.

PURCHASE OF LAND IN FRONT AND SOUTH OF THE CAMPUS IN ACCORDANCE WITH APPROPRIATION OF THE LEGISLATURE.

The ten acres lying in front of the campus and four acres lying at the south of the campus were purchased by the college, the sum of $4,000 being paid therefor in accordance with the terms of the act.

PUYALLUP STATION.

In the last biennial report attention was called to the fact that the board was desirous of complying with the provisions of the law providing for a sub-station west of the Cascades, and the difficulties in the way of such action were pointed out. About the time of the meeting of the legislature, a gift of forty acres of land at Puyallup was proposed on the condition of the purchase of an additional tract. The legislature made an appropriation of $2,500 for the purchase of a twenty-acre tract adjoining the forty-acre tract which it was proposed by the Messrs. Ross to present to the college. Immediately on the adjournment of the legislature, preparations were made for securing a title to the two tracts. A considerable delay occurred in securing the proper survey of the lands and proper titles. At the earliest practicable moment the board made a selection of a suitable man as superintendent and proceeded to improve the property. The forty-acre tract had had the timber mostly removed from it, but was covered with stumps and logs like the ordinary slashings, and the first work, necessarily, was the clearing of this ground. It was thought desirable to conduct this clearing in the form of an experiment, a careful estimate being made of all the expenses connected therewith, and such observations on the methods of clearing land as suggested themselves being recorded. The results of this experiment will be set forth in a bulletin shortly to be issued. The work of clearing and fencing this tract was necessarily slow. Meanwhile experiments were conducted on the twenty-acre tract, particularly in the spraying of hops and in the care and improvement of an old orchard. It was found that a considerable portion of the ground was unfit for cultivation until it should be drained. Some portions of the ground that were apparently clear were found to be underlain with trunks of trees and stumps to such an extent as to preclude the possibility of cultivation. It was found to be utterly impossible to carry on with any degree of success an experiment station until the ground should be put in the proper condition for the work. Consequently much of the work for the past two seasons has been devoted to clearing, draining and fencing the property. It was found further necessary to provide for a dwelling house for the superintendent of the station upon the grounds. A neat and comfortable house was constructed, the ultimate aim being to convert it into a building for the collection and display of seeds and other products of the experiment station. The state legislature is urged to provide for a suitable house for the superintendent so that the building now occupied by him may be devoted to its original purpose.

During the past season a larger attention could be given to experimentation than was possible during the remnant of the previous seasons. The experiments have been generally along two lines; first, and most important of all, has been a series of experiments to test the adaptability of the soil and climatic conditions of Western Washington to the culture of fiber flax. There is reason to believe that the fiber flax industry may be made one of the most important in Western Washington. In fact, it is the belief of the board that it has already been demonstrated that such is the case, and that it now requires but the coöperation of the commercial world and the farming community to make this an important and successful branch of industry. The details of this experiment will be given in a bulletin shortly to be issued by the experiment station, copies of which will be submitted to your excellency. The other lines of experimentation have been principally in connection with fruit and vegetable tests. The study of the black spot in apple trees and other diseases of fruit trees have been made the subject of study. Notwithstanding the depression in the hop industry it has been thought advisable to continue the studies in looking to the destruction of the hop aphis. These experiments in fruit, vegetable and hops will be submitted to the farming community in bulletins issued by the station. Notwithstanding the great hindrance caused by the condition of the lands the board believes that commendable progress has been made in the development of this useful experiment station, and believes that a few years of work would render it one of the most useful auxiliaries to the farming community on the west side of the state that would be possible.

However, an unexpected ruling of the department of agriculture has caused a crisis in the affairs of the sub-station at Puyallup. Under date of March 10, 1896, the department of agriculture, in whose charge the experiment stations are placed, rendered a ruling in which it said, among other things:

> "This department holds that the expenditure of funds appropriated in accordance with the provision of the act of congress of March 2, 1887, for the maintenance of permanent sub-stations is contrary to the spirit and intent of the said act."

The general intent of this ruling, which is set forth in circular 29 of the department of agriculture, is to the effect that it is impossible in any state in the union to expend moneys from the appropriation made in accordance with the act of March 2, 1887, for the maintenance of sub-stations, and that the work of all such sub-stations must be carried on at the expense of the state, or the work of the station closes. It permits, however, that such temporary experiments as may be in progress at the time of the issuing of the circular may be continued until such time as the matter might be laid before the state legislature, and forbids that any money whatever should be expended in permanent improvements. On receipt of this circular the president of the college wrote to the department of experiment stations setting forth the fact that the board of regents were bound by the state law to establish and maintain an experiment station west of the Cascades. The president further explained the climatic conditions of the State of Washington, by reason of which field experiments in particular, in both agriculture and horticulture, are subject to great variations of climate and soil in different parts of the state. The director of experiment stations replied under date of May 23d, in which he said:

> "Your letter of May 15th, regarding the sub-station in Western Washington, has been received. In the case of those states which had sub-stations in actual operation prior to the time when our circular 29 was issued, we do not intend to insist on the immediate closing of the sub-stations. It is presumed that investigations have begun at them which will require some time to complete. We also desire to give an opportunity to the state legislatures to provide funds for the continuance of the sub-stations if this is desirable. There is no doubt that in such a state as Washington more than one station will be needed. It would, however, be unwise to divide the Hatch fund for this purpase. Congress has provided for one station connected with the agricultural college. Now let the state do its share and if other stations are needed, establish them at its own expense. Under present conditions, I would advise you to continue such lines of investigation as you have begun in the western part of the state, but as far as practicable to put the work on a temporary basis. Expenditures for buildings and other permanent improvements should be avoided. It should be distinctly understood that the sub-station under the Hatch act must be a temporary affair, and that there is no obligation to continue expenditures there from the Hatch fund."

Notwithstanding this rather explicit statement of the director of experiment stations, the president of the college again wrote to the director urging more particularly the conditions of the state, and asking for specific answers to certain questions. In the reply of the department under date of June 9th, the director of the experiment stations says:

> "Expenditures from the Hatch fund for investigations in the State of Washington, elsewhere than at the agricultural college, will hereafter be allowed only when such investigations are conducted on a temporary basis. Expenditures for buildings or other permanent improvements at sub-stations will not be allowed. It is advised that the investigations at the sub-station at Puyallup be confined to such as have already been undertaken and which it will be necessary to continue for the present in order to avoid loss to the station in case the legislature decides to provide funds for the continuance of the sub-station. If the legislature fails to make provision for the maintenance of the sub-station at its next session, expenditures from the Hatch fund there should be confined to those connected with such special investigations as can be completed within a reasonable time and at such moderate cost as will not in any way weaken

the work of the main station. The department holds that it is the duty of the governing board to expend the Hatch fund in accordance with the terms of the Hatch act, and that the state legislature has no authority to modify the terms of that act, or to compel the governing board to incur expenditures not contemplated by the act. In general, I may state, the department desires to avoid, as far as possible, any summary measures in the disallowing of station accounts, and desires that all matters relating to the interpretation of the Hatch act shall be thoroughly explained to station officers in advance of final action. In the matter of sub-stations, the department has endeavored to take into account the great variety of diverse conditions existing in different parts of the country, and is still continuing its investigation of this matter. There is an increasing amount of evidence that expenditures for sub-stations thus far made have been productive of meager results, and that the sub-stations have been a weakening drain on the efficiency of the stations supported exclusively by the Hatch fund. In such states as California and Minnesota, where the Hatch funds have been supplemented by state funds, the case is quite different. I feel sure that if the governing board and officers of your station join heartily in an effort to secure state support for the sub-station, and a full presentation of the case is properly made, there will be no difficulty in getting your legislature to appropriate at least a moderate sum for this purpose, and that this amount will be increased as the efficiency of the station work as a whole is developed. The stronger you make the station at Pullman, the easier it will be to get state support for other stations as these may be needed, and they certainly will be needed in a state of such great extent and such varied agricultural possibilities as exist in the State of Washington."

In accordance with these explicit directions of the department the board proceeded to confine the work of the experiment station to such temporary lines as it was then engaged upon, with the exception of such few improvements as could be made from other funds. These experiments will be continued until the close of the meeting of the coming legislature, the sum of $2,500 having been set apart for this experiment station during the current fiscal year. The amount expended during the previous fiscal year was about $3,600. It is the opinion of the board that the state should make immediate provision for the maintenance of such a sub-station, and it is believed that this could be done best and most economically in connection with the said experiment station. It is therefore suggested that the appropriation of $6,000 be made for the two years beginning March 31, 1897, for the maintenance of said station and that such sums be expended under the direction of the governing board of the agricultural college and experiment station in the usual manner. It is, therefore, urged that additional appropriations be made for such buildings at moderate cost as may further the work of the sub-station.

BEET SUGAR.

A bill was passed by the last legislature making a special appropriation of $1,500 for further experimentation in the culture of sugar beets in the State of Washington. This bill was passed in recognition of the excellent work already done in that direction and the great promise of the state as a future sugar producing state. It is the belief of your board that the practical adaptability of the State of Washington for the culture of sugar beets has now had a scientific demonstration. That the task of the institution may fairly be said to be completed. It remains for the commercial and agricultural community to take up and carry to a successful conclusion the work of this industry. This it is believed it may do with the most implicit reliance upon the results of the experiment stations. The results of the more recent experiments will be set forth in a bulletin which will be issued prior to the coming meeting of the legislature. The far reaching commercial importance of the work of the sugar beet industry in the State of Washington can hardly be over estimated. And your excellency would no doubt confer a great benefit upon the state if through this instrumentality the attention of the business world could be called to this fact.

MAINTENANCE.

An appropriation of $25,000 was made for maintenance for two years beginning April 1, 1895. The amount asked for from the state legislature was $28,000. The amount was reduced by the legislature to $25,000. The fact is generally known that the appropriations made by the national legislature to institutions of this character are made for specific purposes, and on the express theory and condition that they are given to aid the several states in establishing and maintaining institutions of this character. In order that the state may benefit by the munificence of the general government, it must not only provide adequate buildings but must provide for many parts of the institution for which the general government makes no provision. The appropriations of the Morrill fund are specifically for "instruction and the facilities for instruction." The cost of heating, lighting and caring for buildings, the cost of repairs, and the general maintenance of the institution, must be provided for by the state, and also for the cost of instruction in branches other than those specified in the national legislation. The resources of a young state like our own have been so pressed to provide for new buildings that hitherto the very lowest possible sums have been appropriated for the maintenance of the institution. Meanwhile the institution has been growing and its requirements for maintenance have been becoming larger. It would be false economy on the part of the state to cripple the work of the institution, or to endanger its national appropriations by inadequate appropriations for maintenance. It would be equally false economy under the present condition of things to sacrifice our great patrimony of lands for a like purpose. The board of regents, after a careful examination, believe that there should be appropriated for the next two years not less than $35,000 for maintenance. And that any sum less than $30,000 for the next two years, would endanger the welfare of the institution. This recommendation is made with the full recognition of the financial depression in the country, and with the belief that it is equally the duty of the board to consider the condition of the state and the safety and growth of the institution.

The appropriation of two years ago proved even less adequate than had been estimated, owing to the following facts: In the first place, up until the spring of 1895 all printing, not only the ordinary printing of the college in the way of stationery and catalogues, but also the printing of the bulletins of the agricultural experiment station had been done from the state printing fund. Almost the entire burden of the printing after that date was thrown upon the college, causing an expenditure which had not been included in the requests for appropriation to the institution. Either a specific appropriation should be made to the institution for printing or an additional amount should be included in the maintenance fund for that purpose. In the second place, an unexpected delay in the construction of the plant rendered it necessary to practically operate two plants at the same time during the first part of the year 1895–96. It was necessary to operate the old plant to furnish light and the new plant to furnish heat. This caused a great increase in the cost of fuel, firemen, engineers, etc. In the third place, while the board had included what seemed to them a proper estimate for repairs, a wind storm came, tearing out the corner of the mechanical engineering building and damaging the greenhouse greatly, causing a total damage of about $1,000. The estimate for the per diem expenses of the regents which had been included in the estimate for the maintenance appropriation was higher than was necessary, and the board would call your attention to the very low total cost caused on this account. The board would further call your attention to the fact that there are now on the college campus seven buildings which must be heated and lighted from the plant, beside the building containing the plant itself, and that janitor force also must be provided for these buildings. This increase which has been rendered necessary by the growth of the institution, increases very materially the cost of maintenance of the institution. The sum of $10,000, or $5,000 a year, in addition to the appropriation of two years ago would therefore be a very conservative estimate of the increase necessary in the appropriation.

COURSE OF STUDY AND INSTRUCTION.

There is no more important work connected with the establishment of an institution than the adoption of a curriculum and the establishment of the methods of instruction which are to be employed. It is the belief of the board of regents that in this respect the growth of the institution has been as rapid as in any other. The annual catalogue for the year ending June 30, 1896, is submitted with this report, and it sets forth in great detail the system adopted by this institution. In many respects the scope and character of the work is the same as it was at the time of the last biennial report. It is the purpose of such an institution to give collegiate instruction, but in the subject matter as well as in the methods employed, the object of preparing the student for some industrial pursuit is kept in mind. The work of such an institution is not confined to agriculture alone, as is thought by many persons, but includes all other forms of industry as well as agriculture. The mechanic arts should form as important a part of such an education as should agriculture itself, if the purposes of the laws providing for the support of the institution be carried out. Since the last report the following additions to the curriculum have been made:

SCHOOL OF FARMING.

A school of farming has been established. This is a short course of two years of six months each, devoted largely to practical work in agriculture and horticulture. It is intended to meet the needs of those boys who come from the farm and after a short time of study go back to the farm. It cannot be expected that a liberal education will be given in so short a period, but it is believed that such students will return with much useful knowledge and more intelligent views of the science of farming and greater interest in the improved agriculture. More than half of the time of such a student is devoted to practical work in the agricultural and horticultural departments. Students who have a fair knowledge of the common branches are admitted to this course. It was found necessary to provide for such a short course in addition to the long course in agriculture and horticulture. A considerable number of students have enrolled in this course, and it is believed that it will serve an exceedingly useful purpose.

SCHOOL OF DAIRYING.

The purpose of the regents in building a creamery was to prepare the way for a course in butter and cheese making. Such a course has been established under the name of the school of dairying, the first session beginning February 17, 1896, and continuing ten weeks. The purpose of this course was to give practical and scientific instruction in the making of butter and cheese by the most modern processes. As was expected, the majority of those enrolled in this course were either engaged in butter and cheese making, or were expecting to do so in the immediate future. Twenty-three persons, representing all parts of the state, were enrolled in this course. The services of Mr. Adolph Schoenmann, a practical manufacturer of butter and cheese in Wisconsin, were engaged. The instruction was given by Mr. Schoenmann and Prof. Spillman, and several hours of practical work in the creamery, daily, was exacted of each student. The course has been most satisfactory in its practical results, and very satisfactory indeed when its effect upon the dairy industry of the state is considered. There is every reason to believe that the State of Washington will be a great dairy state, and the establishment of such a school of dairying will undoubtedly contribute to that end. The dairy school for the coming year will be begun in January, and continued for ten weeks. The additional cost of such a school is very slight and will be included in our estimates for maintenance for the institution. It is the belief of the board of regents that every dollar expended in this way will return many dollars to the state in the prosperity of her people.

The dairy industry has already developed into one of the leading industries of this state. Our climate is peculiarly adapted to it. We have neither the rigorous winters of the north central states, which make stock feeding so expensive, nor the long, hot summers of the south central states, which renders it nearly impossible to handle dairy products to advantage. The natural adaptability of our climate, and the phenomenal development the industry has already had render it certain that dairying will be the most important industry in the state within five years. The mining and lumber industries in and adjacent to the state insure a good market for a large dairy product.

No other industry has felt more the effects of recent investigations and inventions than this. The great dairy schools of Wisconsin, Minnesota, Iowa, New York, Pennsylvania and other states have had the effect of bringing this industry in their respective localities to a remarkable state of perfection. Graduates of their schools are in a large number of the factories, and the instructors spend most of the year in going from place to place imparting instruction. Dairying is peculiarly dependent on intelligent and painstaking methods. For this reason, in those states where dairy instruction is limited, the standard of goods is low. Referring to the San Francisco market reports to-day (October 26, 1896) we see cheese quoted thus: Fancy mild new cheese, 9@10 cents; eastern, 12@13 cents. This difference is due to lack of quality and consequent lack of reputation.

This same distinction holds all over those sections of the country where the influence of these dairy schools is not felt. Commission men in our large cities complain bitterly of the lack of uniformity of our dairy products. This is especially true of butter and cheese made on the farms. The loss from lack of knowledge of how to make a product of uniform excellence amounts in this state alone to many thousands of dollars every year. This knowledge can easily be imparted by means of our dairy school, by a state instructor chosen wholly for his fitness and ability and working under the direction of the college, and by our dairy papers. Petitions for such a traveling instructor have been received by this board, and we recommend that the subject receive your careful attention. No other investment can be made by the state that will so quickly be returned a thousand fold to the people of the state as to extend the work of education in dairying already begun. Our neighboring states, and especially the neighboring province of Canada, are rapidly forging ahead in the matter of dairy instruction. Already British Columbia has provided for permanent work of this kind. If our state is to foster this most important industry and enable our products to acquire a reputation in the markets we are already trying to enter, our butter makers and cheese makers must have the advantages enjoyed by those in other sections of the country with which we have to compete.

SCHOOL OF PHARMACY.

In the furtherance of the practical character and industrial ends of this institution, the board of regents has established a school of pharmacy. Such a course is rendered the more necessary by the requirements of the state law for the thorough preparation of pharmacists. Instruction had been given in pharmacy near the beginning of this institution, but the total lack of suitable equipment at that period caused it to be dropped from the curriculum. At the present time the excellent equipment of the chemical laboratory affords the best of facilities for that important side of a training in pharmacy. A small but well equipped special laboratory in pharmacy has been provided, and the special instruction in pharmacy proper has been placed in the hands of Prof. Watt, who is a graduate in pharmacy and a pharmaceutical chemist. Within the limits of the present faculty it was possible to provide a strong faculty for the department in pharmacy, and consequently a course of the highest order has been offered to the public. It is believed that the course as now given will compare favorably with the best courses in eastern schools of pharmacy. The board of regents would ask your excellency that the attention of the legislature be called to the advisability of a suitable recognition of this school in such a way that it will encourage students of pharmacy to avail themselves of the admirable advantages within our own state, and will at the same time be conducive of the highest training in this important branch.

SCHOOL OF VETERINARY SCIENCE.

A short course in veterinary science has also been offered to the public, and it is believed that many persons will avail themselves of the opportunities thus offered.

SCHOOL OF BUSINESS.

The large demand for bookkeepers and stenographers renders it desirable that provision shall be made for this kind of industrial training in this institution, and accordingly provision has been made. The large enrollment in this department is evidence of the fact that it meets a public want.

PREPARATORY SCHOOL.

Although not strictly within the purposes of the Morrill act in providing for collegiate instruction along certain lines, yet the practical conditions which we must face in this state demands that a preparatory department be maintained. A large percentage of the young men and young women of the state do not have the advantage of a well equipped high school. Besides this, the technical character of much of the work renders it impossible for the ordinary high schools to give an adequate preparation in some branches, particularly mechanical drawing and manual training. It is believed that the maintenance of such a preparatory department will interfere in no way with the excellent high schools of various grades already in existence; and that at the same time it will meet the wants of much the greater part of the people. Attempts have been made to connect the various classes of the college with the schools of various grades throughout the state. Graduates of the best high schools will be admitted to the freshman class after such an examination of their courses of study as will satisfy the faculty that the work in said high schools is sufficient to fit students for the work of the freshman class. High schools with shorter courses and country schools may adopt courses of study of such a character as to articulate with the preparatory department of the college.

FARMERS' INSTITUTES.

An important part of the work of the college is the conducting of farmers' institutes. The means at the disposal of the college have not been sufficient to provide adequately for this work, as measured by the demand from the farming community of the state. No provision has been made whatever by the state for meeting the expenses of such institutes. The railways of the state, realizing the importance of such institutes to the agricultural development of the state, and consequently to their own private interests, have, on most occasions, granted transportation free to members of the faculty sent out to conduct such institutes. In most instances where such institutes have been held, the communities have provided for the entertainment of members of the faculty while in attendance upon such institutes, and in some cases have paid the expenses incurred in going and coming. But the work is often interfered with by the lack of proper funds to meet these traveling expenses. Institutes have been held at Yakima, Ellensburg, Chehalis, Olympia, Tacoma, Sumner, Whatcom, Mount Vernon, Wenatchee, Waterville, Rosalia, and other points, and besides these a large number of individual lectures on subjects relating to agriculture and horticulture have been given. The attendance at these institutes has averaged perhaps 100 at each session. The attendance sometimes running as high as 300, and as low as 25 or 30. Without exception the farmers have expressed themselves as greatly benefited by these institutes, and have requested that other similar institutes be held. Besides this, we have had calls in many places to which we have not been able to respond, owing to the lack of men and means to do so. There has been a very general demand for a state institute instructor, and it is hoped that the time may not be very distant when the example of other states in this particular may be followed. It is very evident that a regular member of the faculty cannot, throughout the school year when instruction must be given regularly to his classes, take the time from his classes necessary to make these trips and give this instruction.

WINTER SCHOOL FOR FARMERS.

Nearly akin in purposes and methods to the farmers' institutes is the winter school for farmers, held at the agricultural college in the months of January and February of each winter. The first of these was held in the winter of 1895, and resulted in an attendance of 305, an attendance which is unparalleled in any state in the union. The larger opportunities which the laboratories at the college afford for practical instruction and which the various departments, etc., afford for practical illustration, make the instruction in the winter school for farmers much more effective and extensive than is possible in the brief farmers' institutes held in remote parts of the state. The school is usually conducted for three weeks. The attendance from Whitman county is much larger than from any other county in the state, naturally, although almost half of the counties in the state have been represented in this school. No additional expense of any moment is incurred in the conducting of these schools. For the time being it makes a heavy drain upon the time and energies of the members of the faculty engaged in it, but this additional labor they are glad to give.

COLLEGIATE DEPARTMENTS.

Your excellency is referred to the catalogue for 1896, which is made a part of this report, for a detailed account of the collegiate instruction offered by this institution. The general scope and character of the work has heretofore been perhaps sufficiently explained. The system of major and minor studies is adhered to in all courses, the purposes of such a system being to give the student as thorough a mastery as possible of some one line of work. The most characteristic feature of the instruction in this institution is that enjoined upon the institution by the state law, namely, instruction by means of "laboratory work." This method characterizes not only the courses in agriculture and horticulture, but the courses in technology and science, and in a certain measure, the more purely literary courses. A further characteristic of the courses is the utilitarian and economic end which is kept in view in the methods of instruction. The aim is, in the collegiate courses, to give an education which will be no less thorough and complete than that given in the best literary institutions, but which while giving a broad intellectual development will at the same time fit the student for pursuits which are industrial in their character. Among the departments which have received particular development since our last report is the department of mining engineering.

MINING ENGINEERING.

Your attention is called to the function of this institution as a school of mines. In the enabling act provision was made for the establishment and maintenance of a scientific school. This was in accordance with the well defined policy of the United States to provide an endowment for a school of mines, school of applied science, or technical school in each state. In the same act, the same institutions for the states of North Dakota, South Dakota and Montana were designated as school of mines. The exact phrase to be employed in this school was not embodied in the enabling act, that being left to the determination of the state legislature. It employed the phrase "school of science." The character of the institution, however, provided for thus by the United States government is practically the same in all the states. This function of this institution was recognized both in the acts of March 28, 1890, and March 9, 1891, in the direction of the legislature, that one of the departments of the instruction of the institution should be mining and metallurgy. In accordance with the express intention of the legislature this institution has made as ample provision as circumstances would permit for instruction in the several branches pertaining to mining, thus discharging its function as a school of mines. The fact that no part of the endowment of lands has yet been made available has prevented as great an extension of this department as otherwise might have been possible. The board would, however, respectfully call your attention to the very thorough and extensive course of study provided for in the annual catalogue. The large equipment of the mechanical engineering department makes it possible to give instruction of the very highest order, amply illustrative of that department of mining. The cost of a plant for instruction on the mechanical side of mining engineering is necessarily very large, and the board deems it a fortunate circumstance that it is able to combine the equipment for the other instruction in mechanical engineering with that in mining engineering. The extensive chemical laboratories of the college have made it possible to give a very thorough course in chemistry, assaying and metallurgy as it relates to mining.

In addition to the regular course in mining engineering, special instruction is given in shorter courses, particularly in assaying, and a considerable number of persons interested in the practical side of the subject have availed themselves of this course. The department of mining engineering is in charge of the head of the civil engineering department of the institution. The faculty for instruction in this department includes the professor and assistant professor of civil engineering, the professor and assistant professor of mechanical engineering, the professor and assistant professor of chemistry and assaying, and the professor of geology and mineralogy. It is a matter of congratulation that so strong a faculty and so large an equipment is available for the department of mining engineering. It is anticipated that further aid in the development of this department will be received at an early date from the general government, steps having been taken by congress in that direction. The professor of geology and mineralogy is now engaged in the preparation of a topographical relief map of the State of Washington, on a scale of twelve miles to the inch. It will contribute very materially to the understanding of the geology of the State of Washington. The industrial character of the work in this institution, taken in connection with the vast mining resources of the state, renders this function of the institution, in the development of the mining industry, one of the most important.

MECHANICAL ENGINEERING.

The department of mechanical engineering has already received very considerable equipment. Such a department, to be rendered very effective, requires much machinery of an expensive character, and it is to be hoped that the state will amply provide for this important department. One feature of the mechanical department requires immediate attention. No adequate provision has as yet been made for foundry shops and forge rooms. Foundry practice and forge work is an essential part of the system of training in mechanical engineering, and provision should be made for shops in which this work may be done. An appropriation of $1,500 for foundry and forge room would cover the expense, and this amount is accordingly asked for.

BIOLOGICAL DEPARTMENT.

The laboratory and class room facilities for the departments of botany and zoölogy are at present very inadequate and unsatisfactory. The rooms set apart for this department are located in different parts of the buildings, and are in no way designed for the purposes of such a department. The experiment station work in entomology, as well as in botany and bacteriology, require ample facilities in order that satisfactory work may be accomplished. The same thing is true of the department of instruction. There has not been sufficient room in either the college hall or the administration building, both of which are overcrowded, to provide sufficiently for these departments. A cheap temporary insectary has been constructed during the past year and answers very well for the time being for the breeding cages and for the study of the life history of injurious insects.

THE NEED OF A BIOLOGICAL LABORATORY.

Section 8 of the act of March 28th, 1890, provides: "That all instruction given in the college shall, to the utmost practicable extent, be conveyed by means of practical work in the laboratory." It provides, further, that there shall be constructed "in connection with the state college the following laboratories: One physical laboratory or more, one chemical laboratory or more, and one biological laboratory or more, and suitably furnish and equip the same." The board of regents called your attention in the report of two years ago to the need of a biological laboratory. That need has grown with the growth of the institution. The present facilities of the institution are not adequate to the work to be done; and there should be erected at as early a date as possible an additional building, and that building should be chiefly used as a biological laboratory. In it provision should be made for a laboratory for general zoölogical work, amply provided with tables, aquaria, etc. Also an entomological laboratory with proper equipment, and these should be connected with the insectary; also with class rooms and offices. There should similarly be a botanical laboratory with proper equipment, together with class rooms, etc. There should also be a room specially designed for the bacteriological work. The board would desire to place in the same building the laboratory and class room work of the departments of agriculture and horticulture; also the department of veterinary science. Such a building should be so constructed as to afford the largest available amount of light. A three-story building about 160 by 60 feet, over all, would be necessary to meet the wants of these departments. The third story should be devoted to a series of connected museums, so arranged as to afford the amplest facilities for the work of students and investigators and designed rather for this purpose than for popular instruction. Such a building, with its equipment, would cost about $50,000, if built plainly and substantially and designed rather for use than for ornament. The board of regents, while recognizing the importance and even the urgency of such a building, after mature consideration, have decided, in view of the financial depression through which the state has been passing, not to press the claims of the college for this building at the present time, believing that the legislature will, as soon as the condition of the state is such that further buildings for educational purposes can be provided, at once make appropriation for such a building.

MUSEUM.

The college is in possession of an excellent museum, the basis of which was given to the institution by the Columbian exposition commission of this state. Additions have been made to the museum by the Smithsonian Institute, and by collections made under the auspices of the college itself. No provision has hitherto been made for cases and jars, etc., for the preservation and display of specimens. We quote from the annual report of the board of regents of the head of the department of botany and zoölogy as follows: "I present hereby a request for $.............. for the museum, for the coming year. The present condition of the museum is not at all satisfactory, and to preserve and exhibit what we already have will require a number of additional cases and also museum jars. At the present time there are but five cases in the museum at all fitted for exhibit purposes, and as the locks on these are broken or out of repair, the cases are frequently opened and the specimens disturbed. A number of specimens have been broken by the handling.

"It is extremely desirable that enough cases of various patterns be obtained so that educational series of specimens can be exhibited. This is, I take it, the most valuable feature of a museum that must necessarily be limited in scope. Among the most important of such serial exhibits I would class the following:

"1. A series illustrating all the orders of animals.

"2. A series illustrating all the *families* of insects.

"3. A series illustrating the life histories and habits of injurious insects in all stages. This would also include their insect enemies.

"4. A series of mounted weeds.

"5. A series of flowering plants illustrating the families.

"In my opinion such serial exhibits would be of much greater educational value than a mere collection of isolated specimens, however interesting each of these might be."

LIBRARY.

One of the most important parts of every college is its library. Ample facilities must be provided, not only for the use of students, but also for the investigations of members of the faculty in their several departments. The library of this college is entirely too small to meet even the most primary needs of the institution. The board of regents would urge that your excellency recommend an appropriation of not less than $2,500 for additions to the library. No other appropriation save that for maintenance is more necessary under the present conditions of the institution than the one for the library.

ADDITIONAL ROOM.

The pressure for additional room renders it imperative that some provision shall be made in this direction. If it is not feasible to construct an additional building, the board would suggest the following method of adding to the available room: Under the roof of the north and south wings of the administration building are unfinished attics equal in floor area to the two recitation rooms directly beneath. By the putting in of suitable joists and flooring and by putting dormer windows in the roof four rooms might be made available for class rooms, equal in size to the rooms now used. Such a change might be made at an expenditure of from $2,500 to $3,000. It is believed that the architecture of the building would be in no wise injured by these changes.

WATER SUPPLY, FIRE PROTECTION AND SEWERAGE.

Under this heading attention is called to three of the most important and pressing needs of the agricultural college and school of science. The demand for an unstinted supply of water, and care of the same after use, is coëxtensive with each and every department of the college. Met by necessities each auxilliary to the other, each obviated by meeting the demands of the other, all calling for a measure of the present and future work of the institution.

The construction of any of the three branches of this system must be carried to full completion. Experience has taught that a water supply or sewerage insufficient in beginning must be in the end supplanted by a new system and the rejection of the old.

WATER SUPPLY.

The present inadequate supply of water rests upon a contract with the city of Pullman, dated March 25, 1892, expiring March 25, 1897. Without touching upon the wisdom of the contract, the present board of regents early realized the importance of the question of water supply, one usually of first consideration in the location and establishment of state institutions. Early in 1896 the board called upon the department of civil engineering to prepare plans and furnish estimates looking to needs of the college.

The state experiment station constructed the small reservoir now in use, and owns the supply main from reservoir to foot of hill where connection is made with the city main. This reservoir is situated upon the highest point in the college grounds. Thus far all buildings have been located to insure a flow of water upon the lower floors. With one exception the roofs of all buildings are above the high water mark in reservoir. To obtain a head of pressure for fire purposes a stand pipe must be erected. The policy of the state is self insurance. The college buildings, with their valuable philosophical, chemical and biological laboratories, are uninsured and absolutely without fire protection. The loss of a part or the whole of this property would be a serious blow to the college, a loss the state must meet without assistance from the general government. The board of regents are mindful of the responsibility that rest upon them touching the care of property in keeping. A more weighty and far reaching responsibility is in the lives of the hundreds of young men and women occupying the dormitories and class rooms of this growing institution. By terms of present contract the city of Pullman is paid $30 per month for pumping water into college reservoir and 22½ cents for each one thousand gallons used for irrigating purposes. The described connection of college reservoir with city water works does not furnish any measure of fire protection, the reservoir being 300 feet above the city wells. If the present contract method of supply met the requirements of the college, and regard for economy, the condition of the pumping plant of Pullman points conclusively to the inability of the city to long perform the service. This urgent need of the college is presented to your excellency and the legislature with the hope that it will receive most careful examination. Based upon the estimates embodied in this report an appropriation of $15,000 is asked "for the construction of a water supply system and its auxilliary fire protection."

SEWERAGE.

The legislature (session of 1893) granted an appropriation of $1,500 for a sewerage system, meeting the requirements of the buildings and campus at that time. This system, now in operation, is limited to the old campus in its area. Since its completion ten acres have been added to the campus and two buildings erected, the administration building and girls' dormitory. This sewerage system must be extended. For this purpose an appropriation of $.......... must be obtained.

CAMPUS.

One of the most attractive things about a college ordinarily is the college campus. The fact that during the past two seasons there has been a great deal of construction work in operation on the grounds, and that a system of sewerage disposal and of steam supply has necessitated the cutting of ditches across the campus, there has been little opportunity for grading the grounds and putting them in proper condition. Thus far the state has made no appropriations of money which might be used for this purpose. The board strongly recommends that an appropriation be made for this purpose. The head of the department of horticulture, in his annual report to the board of regents, says:

> "There is needed in the department of horticulture for the ensuing year funds to complete grading the campus estimated at $5,000. A small portion of the campus is at present graded and sown in grass. This small piece, representing labor that can be spared from regular departmental work in three years, is but a fraction of the work required to complete the whole thirty-two acres. I would therefore urge that this appropriation be allowed, to enable us to at once commence beautifying the college grounds. To grade the campus is the first requisite, but grading is not all. If we would have a fine green sward, we must also have an adequate supply of water. Improving the campus means the establishing of a water plant with its system of pipes and hydrants conveying water to the remotest parts of the grounds."

AGRICULTURAL EXPERIMENT STATION.

The work of the agricultural experiment station has been very satisfactory during the past two years. The crude notion that an agricultural experiment station consists only of field experiments in agriculture and horticulture is rapidly giving place to the truer conception of the work of such a station. The departments of chemistry, botany, entomology, veterinary science, all have important places in agricultural experiment stations, as well as the departments of agriculture and horticulture. And the work of the last named departments is by no means confined to field experiments. The experiment station has issued, since the last biennial report, Bulletin 15, relating to Sugar Beet Industry; Bulletin 16, The Experiments in the Feeding of Wheat to Swine; Bulletin 17, on Injurious Insects of the State of Washington; Bulletin 18, on the Babcock Milk Test; Bulletin 19, on Experiments in Vegetables; Bulletin 20, on Fiber Flax in the State of Washington; Bulletin 21, on the Squirrel Pest. And there is in press at the present time Bulletin 22, Influenza; Bulletin 23, A Continuation of the Soil Analyses of the State of Washington; Bulletin 24, on the Acid Tests With Milk; and Bulletin 25, on Orchard Pruning. The demand for these bulletins has been great and the editions have been rapidly exhausted. Further experiments are being carried on by the chemical department in the study of the soils of Washington, the sugar beet industry, and the value of feeding stuffs. The department of botany and zoölogy is pursuing its experiments in fungus diseases and insect pests. The department of veterinary science, in addition to the experiments in the diseases of the domestic animal, is conducting an elaborate series of experiments in regard to the squirrel pest. The department of horticulture is prosecuting experiments in gardening, forestry and orchard culture. The department of agriculture has in hands a series of experiments in field crops, forage plants and feeding. The department of horticulture stands very much in need of a barn separate and distinct from the one occupied by the department of agriculture. Such a barn should have in connection with it rooms for the packing and storage of fruits and for the storage of roots. The combination of this experimental work in agriculture with the instruction work of the college is looked upon as a fortunate one. It enlists the interests of the students in the economic investigations in which members of the faculty are interested. The usefulness of the experiment station is only limited by the extent of the funds at its disposal.

The needs of the institution may be summed up as follows:

For maintenance for two years	$35,000 00
For library, not less than	2,500 00
For foundry and forge shop	1,500 00
For fitting up attic, administration building	2,500 00
For museum	$500 to 1,000 00
For water supply and fire protection	15,000 00
Extension of sewage system	
For campus	3,000 00
For maintenance of agricultural experiment station at Puyallup	6,000 00
Reimbursement of Morrill fund for cost of one boiler	1,500 00

We submit herewith a statement of the receipts and disbursements for the fiscal year ending June 30, 1896.*

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*This portion of the report is not printed, for the reason that the same is set forth in detail in the report of the state auditor.

EXPERIMENT STATION (HATCH FUND) APPROPRIATION.

Appropriation from U. S. government, year 1894-5	$15,000 00	
Appropriation from U. S. government, year 1895-6	15,000 00	
Expenditures as per statement, year 1894-5		$14,996 77
Expenditures as per statement, year 1895-6		15,000 00
Reverted to U. S. treasury		3 23
Totals	$30,000 00	$30,000 00

STATEMENT OF EXPENDITURES FOR YEAR ENDED JUNE 30, 1895.

Salaries	$5,963 32
Labor	3,575 97
Publications	66 90
Postage and stationery	124 70
Freight and express	1,007 29
Heat, light and water	510 46
Chemical supplies	252 38
Seeds, plants and sundry supplies	702 34
Fertilizers	....
Feeding stuffs	8 75
Library	8 75
Tools, implements and machinery	601 65
Furniture and fixtures	....
Scientific apparatus	231 45
Live stock	947 40
Traveling expenses	227 44
Contingent expenses	20 00
Buildings and repairs	747 97
Total	$14,996 77

STATEMENT OF EXPENDITURES FOR YEAR ENDED JUNE 30, 1896.

Salaries	$7,297 65
Labor	3,742 48
Publications	520 84
Postage and stationery	91 81
Freight and express	390 41
Heat, light and water	....
Chemical supplies	137 92
Seeds, plants and sundry supplies	657 64
Fertilizers	....
Feeding stuffs	201 43
Library	146 43
Tools, implements and machinery	450 24
Furniture and fixtures	....
Scientific apparatus	89 78
Live stock	349 25
Traveling expenses	166 75
Contingent expenses	10 40
Buildings and repairs	746 97
Total	$15,000 00

MORRILL FUND APPROPRIATION.

Balance on hand July 1, 1894	$2,144 28	
Appropriation from U. S. government, year 1894-5	20,000 00	
Appropriation from U. S. government, year 1895-6	21,000 00	
Expenditures as per statement, year 1894-5		$19,334 42
Expenditures as per statement, year 1895-6		23,809 86
Totals	$43,144 28	$43,144 28

STATEMENT OF EXPENDITURES FOR YEAR ENDED JUNE 30, 1895.

Department of agriculture	$2,037 89
Department of mechanic arts	4,930 15
Department of English language	2,459 61
Department of mathematical science	3,802 29
Department of natural or physical sciences	2,572 90
Department of economic science	3,531 58
Total	$19,334 42

STATEMENT OF EXPENDITURES FOR YEAR ENDED JUNE 30, 1896.

Department of agriculture	$2,594 54
Department of mechanic arts	7,841 41
Department of English language	2,873 92
Department of mathematical science	4,618 40
Department of natural or physical sciences	3,786 34
Department of ecomonic science	2,095 25
Total	$23,809 86

COLLEGE FUND.

Balance July 1, 1894	$139 94	
Receipts from all sources, two years ended June 30, 1896	6,563 49	
Disbursements		$7,149 30
*Overdraft	445 87	
Totals	$7,149 30	

The following is taken from the report to the commissioner of education for the year ended June 30, 1896.

PROPERTY AND EQUIPMENT.

Value of all buildings	$135,000 00
Value of equipment	$42,000 00
Total number of acres	236
Total number of acres under cultivation	236
Total number of acres used for experiments	200
Value of farm lands	$15,000 00

LIBRARY.

Number of bound volumes June 30, 1895	3,328
Number of bound volumes added during year ended June 30, 1896	504
Total number of bound volumes	3,832
Number of pamphlets June 30, 1895	1,219
Number of pamphlets added during year ended June 30, 1896	81
Total number of pamphlets	1,300

FACULTY.

	Male.	*Fem.*
Number of instructors for preparatory classes	4	
Number of instructors for collegiate and special classes	15	2
Total number, counting none twice	19	2
Number of staff of experiment station	8	

NOTE.—Some preparatory instruction was given by collegiate and special teachers.

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* This overdraft was offset by cash for running expenses in the college office and expense vouchers amounting to $449.46, thus leaving a balance on hand of $3.59.

STUDENTS.	*Male.*	*Fem.*
Number in preparatory classes	101	63
Number in collegiate and special classes	97	44
Total, counting none twice	198	107

Number of students that pursued courses in agriculture, 17; mechanical engineering (including electrical engineering), 30; civil engineering, 14; mining engineering, 3; veterinary science, 2; military tactics, 162.

E. S. INGRAHAM,
President Board of Regents.
J. W. ARRASMITH,
Vice President Board of Regents.
H. S. BLANDFORD,
J. W. STEARNS,
T. R. TANNATT.

Attest:
E. A. BRYAN,
Secretary Board of Regents.

October 31, 1896.